

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Notice of Proposed Rulemaking)	
18 FCC Rcd 13187, 13188 ¶1 (2003))	ET Docket No. 03-137
)	
And)	
)	
Service Rules for the Advanced Wireless Services)	WT Docket No. 12-357
H Block---Implementing Section 6401 of the)	
Middle Class Tax Relief and Job Creation Act of)	
2012 Related to the 1915-1920 MHz and)	
1995-2000 MHz Bands ¶53 footnote 95)	

To: Office of the Secretary
Federal Communications Commission
Washington, DC 20554

Comment Filed by: Desiree Jaworski
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February 5, 2013

AFFIDAVIT OF Desiree Jaworski

State of Virginia

Arlington County

I, Desiree Jaworski, attest that my statements are true to the best of my knowledge.

Comment round for ET Docket No. 03-137 and WT Docket No. 12-357.

1. My name is Desiree Jaworski. My address is 2130 N. Oakland St. Arlington, VA 22207

2. I am Interim Executive Director for the Center for Safer Wireless.

3. **Introduction and Summary**

We are therefore requesting that the FCC reexamines its microwave radiation exposure standards which were based on thermal radiation and update them. Current research indicates a biological impact exists from non thermal radiation which is emitted from most wireless products like cell phones, cordless phones, Wi-Fi, Wi-Max, wireless routers, smart meters, cell antennas, etc. In this review it should also consider the increased usage time and the radio frequency strength of the products being used by or near the public either together or consecutively. Also, the age and size of the user being exposed to these products and using these products has decreased dramatically since the 1997 guidelines were created.

4. **Current Research**

It takes many years before the harm of a toxic substance on a population is known. This has been the case with cigarette smoking, asbestos and leaded gasoline and paint where groups of people were affected unknowingly until the serious health symptoms appeared. We are now at a point in time where research can see the effects of long term radiofrequency radiation. This research shows a correlation between length of cell phone usage and brain tumors. There are also numerous independent studies showing biological effects in other ways, many of which are harmful.

The BioInitiative Report (www.BioInitiative.org) was produced by renowned world scientists, researchers, and public health policy professionals in 2012. These experts reviewed approximately 1800 studies and provided great detail on the biological effects of electromagnetic fields (EMFs) and specifically radiofrequency (RF) radiation. They stated that at exposure levels considered safe under the FCC guidelines there was single and double strand DNA breakage. Changes and mutations to DNA such as these are associated with cancer. There was also leakage of the blood brain barrier which can lead to neuron damage in the brain. The micronuclei (DNA fragments) increased in human blood lymphocytes. Living cells produced stress proteins. This stress response occurs when a cell is under a harmful attack such as being exposed to elevated temperatures, PH changes, or toxic metals which we know are damaging to

cells. If a cell is under stress, as has been shown to occur at the current permitted level of RF radiation, then the exposure may be harmful.

The BioInitiative Report also stated that medical conditions are being successfully treated using EMFs at levels below current public safety standards, proving categorically that the body recognizes and responds to low-intensity EMF signals. Otherwise, these medical treatments could not work. The FDA has approved these EMF medical treatment devices. Certainly no one would recommend that drugs used in medical treatments and prevention of disease be randomly given to the public, especially to children. Yet, the current regulations allow random and involuntary exposures to EMFs all the time in daily life.

The following are 13 Studies Demonstrating an Increased Risk of Brain Tumors from 10 Years or More of Cell Phone Use

- ◆ Sponsored by the World Health Organization, the INTERPHONE Study, a 13 country case control international study about the possible link between cell phones and brain tumors, was published in the *International Journal of Epidemiology*, on Tuesday, May 18, 2010. The mainstream media reported this study as providing no evidence that cell phones contribute to brain cancer.
 - ◆ Study Finding: Those using a cell phone on the same side of the head (ipsilateral use) for 10 years or more have a 40% increased risk of getting a glioma.
 - ◆ Appendix II: To account for participation bias in controls, scientists used participants with lower exposure levels and compared them to those with the highest exposure levels. Those who used a cell phone ipsilaterally for at least 1640 hours over 10 years or more had a 83% increased risk of getting a glioma.
 - ◆ A link to the letter by the lead author of this important study to the Journal of Occupational and Environmental Medicine published in January 2011 about the study follows.
 1. <http://oem.bmj.com/content/early/2010/12/15/oem.2010.061358>
- ◆ Hardell, Lennart (in Sweden), *International Journal of Oncology*, Meta-Analysis of Mobile Phone Use and the Association of Brain Tumors. 2008, 32(5): 1097-1103. Findings: Significantly increased risk of glioma and acoustic neuroma after mobile phone use of 10 and more years on the same side of the head used for mobile phone.
- ◆ Lahkola A, Auvinen A, Raitanen, J, Schoemaker MJ, Christensen HC, Feychting M, Johansen C, Klaeboe L, Lonn S, Swerdlow AJ, Tynes T, Salminen T(90) *Intl. Journal of Cancer*, Mobile Phone Use and Risk of Glioma in 5 North European Countries; 2007 120(8): 1769-75. Significantly increased risk of glioma after mobile phone use of 10 and more years on the same side of the head used for making calls.
- ◆ Kan P, Simonsen SE, Lyon JL, Kesler JR (78) Cellular Phone Use and Brain Tumor: A Meta-Analysis. *J. Neurooncol* 2008; 86(1): 71-8. Significantly increased risk of brain tumors after mobile phone use of 10 and more years; no increased risk for shorter usage periods.

- ◆ Seung-Kwon Myung, Woong Ju, Diana D. McDonnell, Yeon Ji Lee, Gene Kazinets, Chih-Tao Cheng, Joel M. Moskowitz. Mobile Phone Use and Risk of Tumors: A Meta-Analysis. *Journal of Clinical Oncology*. 27(33) (November 20) 2009: pp. 5565-5572. The current study found that there is possible evidence linking mobile phone use to an increased risk of tumors from a meta-analysis of low-biased case-control studies. Prospective cohort studies providing a higher level of evidence are needed.
- ◆ Schoemaker MJ, Swerdlow AJ, Ahlbom A, Auvinen A, Blaasaas KG, Cardis E, Christensen HC, Feychting M, Hepworth SJ, Johansen C, Klaeboe L, Lönn S, McKinney PA, Muir K, Rai-tanen J, Salminen T, Thomsen J, Tynes T Mobile phone use and risk of acoustic neuroma: results of the Interphone case-control study in five North European countries. *Br J Cancer* 2005; 93(7): 842-8. Significantly increased risk of acoustic neuroma after mobile phone use of 10 or more years on the same side of head used for mobile phone Lönn S, Ahlbom A, Hall P, Feychting M (Interphone Study Group, Sweden) Long-term mobile phone use
- ◆ Hardell L, Carlberg M, Söderqvist F, Hansson Mild K, Morgan LL Long-term use of cellular phones and brain tumours - increased risk associated with use for > or = 10 years. *Occup Environ Med* 2007; 64(9): 626-32. Significantly increased risk of glioma and acoustic neuroma after mobile phone use of 10 and more years; the highest tumor rate on the same side of the head used for mobile phone.
- ◆ Hardell L, Carlberg M, Söderqvist F, Hansson Mild K Meta-analysis of long-term mobile phone use and the association with brain tumours. *Int J Oncol* 2008; 32(5): 1097-1103. Significantly increased risk of glioma and acoustic neuroma after mobile phone use of 10 and more years on the same side of the head used for mobile phone.
- ◆ Hardell L, Carlberg M, Hansson Mild K Pooled analysis of two case-control studies on the use of cellular and cordless telephones and the risk of malignant brain tumors diagnosed during 1997-2003. *Int Arch Occup Environ Health* 2006; 79(8): 630-9. Significantly increased risk of brain tumors in mobile and cordless phone users after a usage period of 10 and more years on the same side of the head used for making phone calls
- ◆ Lönn S, Ahlbom A, Hall P, Feychting M (Interphone Study Group, Sweden) Long-term mobile phone use and brain tumor risk. *Am J Epidemiol* 2005; 161(6): 526-35. Slightly but not significantly increased risk of meningioma and glioma after mobile phone use of 10 and more years on the same side of head used for mobile phone.
- ◆ Schüz J, Böhler E, Berg G, Schlehofer B, Hettinger I, Schläefer K, Wahrendorf J, Kunna-Grass K, Blettner M (Interphone Study Group, Germany) (86) Cellular phones, cordless phones, and the risks of glioma and meningioma. *Am J Epidemiol* 2006; 163(6): 512-20. Slightly but not significantly increased risk for glioma after mobile phone use of 10 and more years. Slightly but not significantly increased risk for glioma after mobile phone use of 10 and more years
- ◆ Hepworth SJ, Schoemaker MJ, Muir KR, Swerdlow AJ, von Tongeren MJ, McKinney PA Mobile phone use and risk of glioma in adults: case-control study. *BMJ* 2006; 332(7546): 883-7. Slightly but not significantly increased risk of glioma after mobile phone use of 10 and more years, significant increase on the same side of the head used for mobile phone Hours M, Bernard M, Montestrucq

- L, Arslan M, Bergeret A, Deltour I, Cardis E Cell phone and risk of brain and acoustic nerve tumours: the French Interphone casecontrol study. *M Rev Epidemiol Santé Publique* 2007; 55(5): 321-32. Slightly but not significantly increased risk of glioma in long term users, frequent users, and users of two mobile phones
- ◆ Christensen HC, Schüz J, Kosteljanetz M, Poulsen HS, Boice JD Jr, McLaughlin JK, Johansen C Cellular telephones and risk for brain tumors: a population-based, incident case-control study. *Neurology* 2005; 64(7): 1189-95. Slightly but not significantly increased risk for astrocytoma I-II for high-grade astrocytoma and meningioma Schüz J,
 - ◆ Lönn S, Ahlbom A, Hall P, Feychting M Mobile phone use and the risk of acoustic neuroma. *Epidemiology* 2004; 15(6): 653-9. Increased risk of acoustic neuroma in mobile phone users after 10 or more years, significant for the side of the head used for making phone calls

On the basis of scientific evidence summarized in two meta-analyses published in 2000 (Ahlbom et al, Greenland et al.) that included nine and twelve studies respectively, the WHO's research unit (the International Agency for the Research of Cancer (IARC)) defined ELF (extremely low frequency) as a possible carcinogen (level B2). The study by Greenland found an odds ratio of 1.68 (OR-CI 95% 1.23-2.31) after adjusting for age and sex, for risk of leukemia among children who were exposed to fields greater than 0.3 μ T in comparison to children exposed to fields lower than 0.1 μ T. Following adjustments for age, sex, socioeconomic status and residency in East/West Germany, Ahlbom et al. observed an odds ratio of 2.00 (OR-CI 95% 1.27-3.13) for risk of leukemia among children who were exposed to fields equal to or greater than 0.3 μ T, in comparison to children exposed to fields lower than 0.1 μ T."

Source: <http://www.disconnectbook.com/2011/03/07/position-paper-on-electromagnetic-radiation-in-a-school-environment>

BIOLOGICAL EFFECTS OF MICROWAVES BELOW U.S. & CANADA'S REGULATORY LIMIT

(microW/cm²) Reported Biological Effects References

- 0.0000000000001 Altered genetic structure in *E. Coli* Belyaev 1996
- 0.0000000001 Threshold of human sensitivity Kositsky 2001
- 0.000000001 Altered EEG in human subjects Bise 1978
- 0.0000000027 Growth stimulation in *Vicius fabus* Brauer 1950
- 0.00000001 Effects on immune system in mice Bundyuk 1994
- 0.00000002 Stimulation of ovulation in chickens Kondra 1970
- 0.000005 Effect on cell growth in yeast Grundler 1992
- 0.00001 Conditioned "avoidance" reflex in rats Kositsky 2001
- 0.000027 Premature aging of pine needles Selga 1996

0.001 100 Yards / meters from Cell Phone

- 0.002 Sleep disorders, abnormal blood pressure, nervousness, weakness, and fatigue
- limb and joint pain, digestive problems, fewer schoolchildren promoted

Altpeter 1995, 1997

- 0.0027 Growth inhibition in *Vicius fabus* Brauer 1950
- 0.0027 to 0.065 Smaller tree growth rings Balodis 1996

0.007 50 Feet from a Cordless Phone

- 0.01 Human sensation Kolbun 1987

0.016 1 Mile (1.6Km) from a Cellular Tower

- 0.06 Altered EEG, disturbed carbohydrate metabolism, enlarged adrenals, altered adrenal hormone levels, structural changes in liver, spleen, testes, and brain in white rats and rabbits Dumanskij 1974
- 0.06 Slowing of the heart, change in EEG in rabbits Serkyuk, reported in McRee 1980

0.05 10 Feet /3 meters from a Wireless Computer

- 0.1 Increase in melatonin in cows Stark 1997
- 0.1 to 1.8 Decreased life span, impaired reproduction, structural and developmental abnormalities in duckweed plants Magone 1996
- 0.13 Decreased cell growth (human epithelial amnion cells) Kwee 1997
- 0.168 Irreversible sterility in mice Magras 1997
- 0.2 to 8.0 Childhood leukemia near transmitters Hocking 1996
- 0.3 Impaired motor function, reaction time, memory and attention of school children, and altered sex ratio of children (fewer boys) Kolodynski 1996
- 0.6 Change in calcium ion efflux from brain tissue Dutta 1986
- 0.6 Cardiac arrhythmias and sometimes cardiac arrest (frogs) Frey 1968
- 0–4 Altered white blood cell activity in schoolchildren Chiang 1989
- 1.0 Headache, dizziness, irritability, fatigue, weakness, insomnia, chest pain, difficulty breathing, indigestion (humans—occupational exposure) Simonenko 1998
- 1.0 Stimulation of white cells in guinea pigs Shandala 1978
- 2.5 Breakdown of blood-brain barrier (used a digital cell phone to radiate) Salford 1997

The studies listed above represent only a small sampling of the many research studies which show there are biological effects from non thermal radiofrequency waves. It is critical that the FCC uses such independent studies and conducts its own independent analysis to create revised guidelines for acceptable levels of radiofrequency waves.

5. Proposed Reforms

As a result of the many studies indicating health concerns, numerous countries are now either looking into reducing RF intensity, completely eliminating it in some circumstances, or taking a precautionary stance of informing the public, especially in the case of children, to limit their usage of cell phones. In 2008 the European Parliament voted by 522 to 16 that the current limits for the general public on electromagnetic frequencies are obsolete. They urged the leaders in Europe to reduce the limits for exposure to radiation from radiofrequency emitting products. Importantly, in 2009 this same group resolved that antennas, mobile phone towers, and other electromagnetic radiation emitting devices be placed at specific distances from schools, retirement homes, health institutions, and consumers especially children.

Wireless internet has been banned from public schools in Frankfurt, Germany. The French Government has eliminated all Wi-Fi from public libraries due to health concerns and recommended banning cell phones from schools. Municipalities in France are initiating protective measures. The town of Herouville-St. Clair removed wireless devices from schools and public buildings. The town of Ollins decreed mobile phone masts could not be built within 100 meters of schools or day care centers. Switzerland, Germany, Israel, France, The United Kingdom, and Finland have issued warnings to limit cell phone use, particularly by children. The highest Regional Court in Brescia, Italy has issued a judgment confirming a causal connection between the brain tumor of an employee and the use of cordless (DECT) and cell phones at work. This judge excluded all industry financed appraisals and relied on industry independent data. The judgment makes it possible for employees in Italy to insist on the access to a corded phone and a legal right to advise their employer that they are legally liable for future damages if they insist on the use of a cordless phone. Sweden has granted sufferers from Electromagnetic hypersensitivity the status of persons with reduced capacity so that they receive suitable protection.

In 1999, the National Institute of Health in the U.S. issued recommendations calling for reduction of the exposure to ELF by increasing the distance between the sources of radiation exposure and the exposed person, and minimizing the duration of time spent near the source of the exposure.

The United States should be a leader in undertaking the best course of action for its citizens. It is now the time to recognize the thermal effects and biological effects of RF radiation. Since exposure over time is required in order to determine the extent of the damage from radiation we may be at the beginning stages of a health disaster that could have major social and economic ramifications.

Guidelines must be created that dictate RF emissions be as low as possible due to the ever increasing exposure of our population, especially our children, who are more vulnerable to the health risks. It is critical that people are made aware of the potentially harmful health risks from not properly using the devices. All RF emitting devices need to display on them the critically important safety warning of the distance they should be kept from the body instead of only putting it in the instructional manual. Teachers, parents, and children need to be educated to the specific risks of cell and DECT cordless phones, as well as other devices emitting RF. In addition, ban all of these devices from schools as a precautionary measure. Cell antennas should not be near schools. There should be a mass media campaign to encourage limited use of cell and DECT cordless phones by children and other vulnerable groups such as the elderly, pregnant woman, infants, etc.

Research is needed to develop telecommunications based on other technology that is known to cause less biological harm. The cell phone industry needs to develop and offer phones that operate with the least amount of radiation possible. Products need to be developed that protect the consumer from the radiation. Limiting exposure is critical until all the potential health risks are both fully understood and eliminated. Failure to do this could lead to catastrophic health implications.

6. Conclusion

The FCC regulations permit the amount of allowable RF energy absorbed by 1 gram of brain tissue from a cell phone to be 1.6 W/Kg in the United States. For whole body exposure, the exposure is 0.8 W/Kg averaged over 30 minutes for the general public. The public is obviously exposed to these levels of RF for more than 30 minutes a day. Good public health policy dictates that the country moves with caution when its whole population is being exposed to an unnatural level of radiation. To this extent the specific absorption rate of SAR only regulates against thermal damage and is not the way to measure the biological impact that we are seeing in current research on RF radiation.

It is urgent that the FCC guidelines be reviewed and updated with the current unbiased research that has been and still is being conducted in the world. The exposure guidelines should be changed so that they are biologically based and ensure the telecommunications devices which we are exposed to are compliant with these standards. The standards should be developed to take into account various physiological conditions such as children, elderly people, pregnant women, and babies.

The FCC must be a world leader in helping to determine what our future will look like for our children and their children. Whatever policy is created based on the facts today will not necessarily be what it is in the future. This is a time of unprecedented change in telecommunications and it is imperative that our country moves forward in a progressive but safe environment for all of our people.

Respectively submitted,

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